

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr Syed Jafar Ali (Reg 58,780) on 8/21/09.

#### *Reason for Allowance*

The following is an examiner's statement of reasons for allowance:

In reference to allowable subject matter:

None of the prior art of records teach or suggest in combination features as stated in the Examiner's Amendment Section. None of the prior art of records teach or suggest the features stated in the Examiner's Amendment Section in combination with independent claims 1, 9, and 17.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Claims*

The Application is amended as follows:

1. **(Currently Amended)** A method for agent-based monitoring of network devices, comprising:

discovering, by a hardware processor in a computer, a plurality of network devices in a network, wherein each of the network devices discovered in the network include one or more Management Information Base (MIB) objects that identify a type and a plurality of hardware characteristics for the respective network device discovered in the network;

transmitting a Simple Network Management Protocol (SNMP) request to each of the discovered network devices to obtain the Management Information Base (MIB) objects from each respective network device discovered in the network;

~~discovering a plurality of network device classes in the network, wherein each of the network device classes discovered in the network correspond to the type for one or more of the discovered network devices;~~

loading, by the hardware processor in the computer, a plurality of agent templates corresponding to the discovered network devices, wherein

each of the agent templates comprise an agent construct that includes a class hierarchy having a plurality of ~~instance-level~~ class definitions ~~for one of the network device classes discovered in the network, and wherein~~

the plurality of ~~instance-level~~ class definitions in the class hierarchy comprise one or more parent classes that include the types for the discovered network devices, and

the plurality of class definitions in the class hierarchy further comprise one or more child classes associated with the one or more parent classes, the one or more child classes including ~~represent the plurality of hardware characteristics for the one or more discovered network devices of the type corresponding to the respective network device~~ class;

selecting one of the discovered network devices as a network device to be monitored, wherein the selected network device has a type and a plurality of hardware characteristics;

selecting one of the plurality of agent templates based on ~~that comprises the class hierarchy for the network device class corresponding to the type for the selected network device, wherein the plurality of instance-level class definitions in the class hierarchy for the selected agent template represent the hardware characteristics for the one or more discovered network devices of the type corresponding to the network device class and the type for the selected network device~~ selected to be monitored; and

~~instantiating, by the computer, a plurality of agent objects from the plurality of instance level class definitions in the class hierarchy for the selected one of the plurality of agent template templates, wherein the plurality of instantiated agent objects correspond to the plurality of hardware characteristics for the selected network device, and wherein the plurality of instantiated agent objects are configured to monitor the plurality of hardware characteristics for the selected network device;~~

~~retrieving, by the plurality of instantiated agent objects, information associated with each of the plurality of monitored hardware characteristics for the selected network device;~~

~~comparing, by the plurality of instantiated agent objects, the retrieved information associated with each of the plurality of monitored hardware characteristics to a respective threshold value; and~~

~~automatically communicating, by the computer, an alert to a user of the computer in response to the retrieved information for one or more of the monitored hardware characteristics violating the respective threshold value.~~

2. (Cancelled)

3. (Currently Amended) The method of claim [[2]] 1, wherein the plurality of hardware characteristics for the ~~selected~~ discovered network ~~devices~~ device include one or more of a vendor identity, a model number, or a product line, ~~or the at least one MIB parameter.~~

4. (Cancelled)

5. (Currently Amended) The method of claim [[4]] 1, wherein the plurality of hardware characteristics for information retrieved from the selected discovered network ~~device~~ includes devices include one or more of memory usage, chassis temperature, Central Processing Unit (CPU) usage, fan status, module status, or power supply status.

6-7. (Cancelled)

8. **(Currently Amended)** The method of claim 1, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template further includes templates include a network addressable unit class ~~that defines the network device class~~ corresponding to the type for the selected network device and an agent level class that comprises a root class within the class hierarchy, the agent level root class having a class declaration that includes a parent clause listing the network addressable unit class ~~that defines the network device class~~ corresponding to the type for the selected network device.

9. **(Currently Amended)** A computer for agent-based monitoring of network devices, the computer comprising at least one hardware processor ~~processing device that executes configured to execute computer-executable instructions, wherein executing the computer-executable instructions on the processing device that~~ cause the hardware processor ~~processing device~~ to:

discover, by the hardware processor, a plurality of network devices in a network, wherein each of the network devices discovered in the network include one or more Management Information Base (MIB) objects that identify a type and a plurality of hardware characteristics for the respective network device discovered in the network;

transmit a Simple Network Management Protocol (SNMP) request to each of the discovered network devices to obtain the Management Information Base (MIB) objects from each respective network device discovered in the network;

~~discover a plurality of network device classes in the network, wherein each of the network device classes discovered in the network correspond to the type for one or more of the discovered network devices;~~

load, by the hardware processor, a plurality of agent templates corresponding to the discovered network devices, wherein;

each of the agent templates comprise an agent construct that includes a class hierarchy having a plurality of ~~instance-level class definitions for one of the network device classes discovered in the network, and wherein~~

the plurality of ~~instance-level class definitions in the class hierarchy comprise one or more parent classes that include the types for the discovered network devices, and~~

the plurality of class definitions in the class hierarchy further comprise one or more child classes associated with the one or more parent classes, the one or more child classes including ~~represent the plurality of~~ hardware characteristics for the ~~one or more~~ discovered network devices ~~of the type corresponding to the respective network device~~ class;

select one of the discovered network devices as a network device to be monitored; ~~wherein the selected network device has a type and a plurality of hardware characteristics;~~

select one of the plurality of agent templates based on ~~that comprises the class hierarchy for the network device class corresponding to the type for the selected network device, wherein the plurality of instance-level class definitions in the class hierarchy for the selected agent template represent the hardware characteristics for the one or more discovered network devices of the type corresponding to the network device class and the type for the selected network device selected to be monitored; and~~

instantiate, by the hardware processor, a plurality of agent objects from the ~~plurality of instance-level class definitions in the class hierarchy for the selected~~ one of the plurality of agent template templates, wherein the plurality of instantiated agent objects correspond to the plurality of hardware characteristics for the selected network device, and wherein the plurality of instantiated agent objects ~~are configured to monitor the plurality of hardware characteristics for the selected network device;~~

retrieve, by the plurality of instantiated agent objects, information associated with each of the plurality of monitored hardware characteristics for the selected network device;

compare, by the plurality of instantiated agent objects, the retrieved information associated with each of the plurality of monitored hardware characteristics to a respective threshold value; and

automatically communicate, by the hardware processor, an alert to a user of the computer in response to the retrieved information for one or more of the monitored hardware characteristics violating the respective threshold value.

11. **(Currently Amended)** The computer of claim [[10]] 9, wherein the plurality of hardware characteristics for the ~~selected~~ discovered network ~~devices~~ device include one or more of a vendor identity, a model number, or a product line, ~~or the at least one MIB parameter.~~

12. **(Cancelled)**

13. **(Currently Amended)** The computer of claim [[12]] 9, wherein the plurality of hardware characteristics for information retrieved from the ~~selected~~ discovered network ~~device~~ includes devices include one or more of memory usage, chassis temperature, Central Processing Unit (CPU) usage, fan status, module status, or power supply status.

14-15. **(Cancelled)**

16. **(Currently Amended)** The computer of claim 9, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template further includes templates include a network addressable unit class ~~that defines the network device class~~ corresponding to the type for the selected network device and an agent level class that comprises a root class within the class hierarchy, the agent level root class having a class declaration that includes a parent clause listing the network addressable unit class ~~that defines the network device class~~ corresponding to the type for the selected network device.

17. **(Currently Amended)** A system for agent-based monitoring of network devices discovered in an enterprise network, the system comprising one or more hardware processors processing devices configured to that:

discover, by the one or more hardware processors, a plurality of network devices in a network, wherein each of the network devices discovered in the network include one or more Management Information Base (MIB) objects that identify a type and a plurality of hardware characteristics for the respective network device discovered in the network;

transmit a Simple Network Management Protocol (SNMP) request to each of the discovered network devices to obtain the Management Information Base (MIB) objects from each respective network device discovered in the network;

~~discover a plurality of network device classes in the network, wherein each of the network device classes discovered in the network correspond to the type for one or more of the discovered network devices;~~

load, by the one or more hardware processors, a plurality of agent templates corresponding to the discovered network devices, wherein;

each of the agent templates comprise an agent construct that includes a class hierarchy having a plurality of instance-level class definitions ~~for one of the network device classes discovered in the network, and wherein~~

the plurality of ~~instance-level~~ class definitions in the class hierarchy comprise one or more parent classes that include the types for the discovered network devices, and

the plurality of class definitions in the class hierarchy further comprise one or more child classes associated with the one or more parent classes, the one or more child classes including ~~represent the plurality of~~ hardware characteristics for the ~~one or more~~ discovered network devices ~~of the type corresponding to the respective network device class;~~

select one of the discovered network devices as a network device to be monitored; ~~wherein the selected network device has a type and a plurality of hardware characteristics;~~

select one of the plurality of agent templates based on ~~that comprises the class hierarchy for the network device class corresponding to the type for the selected network device, wherein the plurality of instance-level class definitions in the class hierarchy for the selected agent template represent the hardware characteristics for the one or more discovered network devices of the type corresponding to the network device class and the type for the selected network device selected to be monitored;~~ and

instantiate, by the one or more hardware processors, a plurality of agent objects from the plurality of ~~instance-level~~ class definitions ~~in the class hierarchy~~ for the selected one of the plurality of agent template templates, wherein the plurality of instantiated agent objects correspond to the plurality of hardware characteristics for the selected network device, and

wherein the plurality of instantiated agent objects ~~are configured to~~ monitor the plurality of hardware characteristics for the selected network device;

retrieve, by the plurality of instantiated agent objects, information associated with each of the plurality of monitored hardware characteristics for the selected network device;

compare, by the plurality of instantiated agent objects, the retrieved information associated with each of the plurality of monitored hardware characteristics to a respective threshold value; and

automatically communicate, by the one or more hardware processors, an alert to a user of the computer in response to the retrieved information for one or more of the monitored hardware characteristics violating the respective threshold value.

18. (Cancelled)

19. (Currently Amended) The system of claim [[18]] 17, wherein the plurality of hardware characteristics for the ~~selected~~ discovered network ~~devices~~ device include one or more of a vendor identity, a model number, or a product line, ~~or the at least one MIB parameter.~~

20. (Cancelled)

21. (Currently Amended) The system of claim [[20]] 17, wherein the plurality of hardware characteristics for ~~information retrieved from the selected~~ discovered network ~~device includes~~ devices include one or more of memory usage, chassis temperature, Central Processing Unit (CPU) usage, fan status, module status, or power supply status.

22-23. (Cancelled)

24. (Currently Amended) The system of claim 17, wherein the plurality of class definitions in the class hierarchy for the selected ~~one of the plurality of~~ agent ~~template further includes~~ templates include a network addressable unit class ~~that defines the network device class~~ corresponding to the type for the selected network device and an agent level class that comprises



a root class within the class hierarchy, the agent level root class having a class declaration that includes a parent clause listing the network addressable unit class ~~that defines the network device class corresponding to the type for the selected network device.~~

25. **(Currently Amended)** A method for agent-based monitoring of switches, comprising:
- discovering, by a hardware processor in a computer, a plurality of switches in a network, wherein each of the switches discovered in the network include one or more Management Information Base (MIB) objects that identify a type and a plurality of hardware characteristics for the respective switch discovered in the network;
  - transmitting a Simple Network Management Protocol (SNMP) request to each of the discovered switches to obtain the Management Information Base (MIB) objects from each respective switch discovered in the network;
  - ~~discovering a plurality of switch classes in the network, wherein each of the switch classes discovered in the network correspond to the type for one or more of the discovered switches;~~
  - loading, by the hardware processor in the computer, a plurality of agent templates corresponding to the discovered switches, wherein:
    - each of the agent templates comprise an agent construct that includes a class hierarchy having a plurality of ~~instance-level~~ class definitions ~~for one of the switch classes discovered in the network, and wherein~~
    - the plurality of ~~instance-level~~ class definitions in the class hierarchy comprise one or more parent classes that include the types for the discovered switches, and
    - the plurality of class definitions in the class hierarchy further comprise one or more child classes associated with the one or more parent classes, the one or more child classes including ~~represent the~~ plurality of hardware characteristics for the ~~one or more~~ discovered switches ~~of the type corresponding to the respective switch class;~~
    - selecting one of the discovered switches as a switch to be monitored, ~~wherein the selected switch has a type and a plurality of hardware characteristics;~~
    - selecting one of the plurality of agent templates based on ~~that comprises the class hierarchy for the switch class corresponding to the type for the selected switch, wherein the~~

~~plurality of instance level class definitions in the class hierarchy for the selected agent template represent the hardware characteristics for the one or more discovered switches of the type corresponding to the switch class and the type for the selected switch selected to be monitored; and~~

~~instantiating, by the computer, a plurality of agent objects from the plurality of instance level class definitions in the class hierarchy for the selected one of the plurality of agent template templates, wherein the plurality of instantiated agent objects correspond to the plurality of hardware characteristics for the selected switch, and wherein the plurality of instantiated agent objects are configured to: monitor the plurality of hardware characteristics for the selected switch;~~

~~monitor the plurality of hardware characteristics for the selected switch;~~

~~retrieving, by the plurality of instantiated agent objects, retrieve information associated with each of the plurality of monitored hardware characteristics ~~from~~ for the selected switch; and~~

~~comparing, by the plurality of instantiated agent objects, compare the retrieved information associated with each of the plurality of monitored hardware characteristics to a respective threshold value; and~~

~~automatically communicating, by the computer, an alert to a user of the computer in response to the retrieved information for one or more of the monitored hardware characteristics violating the threshold value.~~

26. (Currently Amended) The method of claim 25, wherein the plurality of hardware characteristics for the ~~selected switch~~ discovered switches include one or more of a vendor identity, a model number, or a product line, ~~or at least one MIB parameter.~~

27. (Cancelled)

28. (Currently Amended) The method of claim 25, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template ~~further includes~~ templates include a network addressable unit class ~~that defines the switch class~~ corresponding to the type for the selected switch and an agent level class that comprises a root

class within the class hierarchy, the agent level root class having a class declaration that includes a parent clause listing the network addressable unit class ~~that defines the switch class~~ corresponding to the type for the selected switch.

29. **(Currently Amended)** The method of claim 28, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template templates further ~~includes~~ include one or more group level classes and a plurality ~~that define children of the agent level root class within the class hierarchy~~ instance level classes, and wherein the one or more group level classes defining child classes associated with the agent level root class and logically group grouping the plurality of instance level classes ~~within the class hierarchy~~.

30. **(Currently Amended)** The method of claim 8, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template templates further ~~includes~~ include one or more group level classes and a plurality ~~that define children of the agent level root class within the class hierarchy~~ instance level classes, and wherein the one or more group level classes defining child classes associated with the agent level root class and logically group grouping the plurality of instance level classes ~~within the class hierarchy~~.

31. **(Currently Amended)** The computer of claim 16, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template templates further ~~includes~~ include one or more group level classes and a plurality ~~that define children of the agent level root class within the class hierarchy~~ instance level classes, and wherein the one or more group level classes defining child classes associated with the agent level root class and logically group grouping the plurality of instance level classes ~~within the class hierarchy~~.

32. **(Currently Amended)** The system of claim 24, wherein the plurality of class definitions in the class hierarchy for the selected one of the plurality of agent template templates further ~~includes~~ include one or more group level classes and a plurality ~~that define children of the agent level root class within the class hierarchy~~ instance level classes, and wherein the one or more

group level classes defining child classes associated with the agent level root class and logically  
~~group~~ grouping the plurality of instance level classes ~~within the class hierarchy.~~

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAREN C. TANG whose telephone number is (571)272-3116. The examiner can normally be reached on M-F 7 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571)272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karen C Tang/

Patent Examiner, Art Unit 2451